

ANTIOXIDANTS and FREE RADICALS



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Antioxidants are intimately involved in the prevention of cellular damage -- the common pathway for cancer, aging and a variety of diseases.

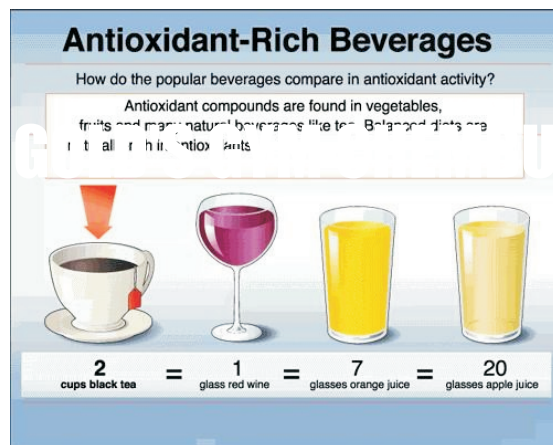
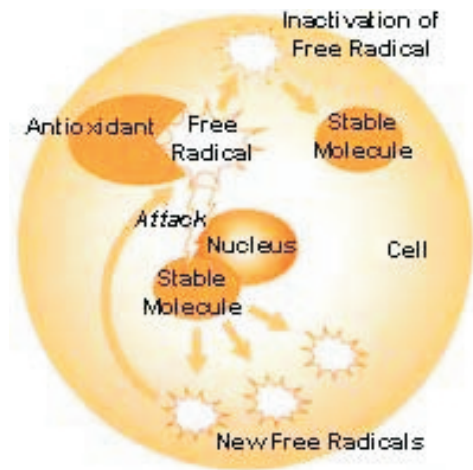
The purpose of this article is to serve as a beginner's guide to what antioxidants are and to briefly review their role in exercise and general health. What follows is only the tip of the iceberg in this dynamic and interesting subject.

It's the radicals

Free radicals are atoms or groups of atoms with an odd (unpaired) number of electrons and can be formed when oxygen interacts with certain molecules. Once formed, these highly reactive radicals can start a chain reaction, like dominoes. Their chief danger comes from the damage they can do when they react with important cellular components such as DNA, or the cell membrane. Cells may function poorly or die if this occurs. To prevent free radical damage, the body has a defense system of antioxidants.

Antioxidants are molecules which can safely interact with free radicals and terminate the chain reaction before vital molecules are damaged. Although there are several enzyme systems within the body that scavenge free radicals, the principle micronutrient (vitamin) antioxidants are vitamin E, beta-carotene, and vitamin C. Additionally, selenium, a trace metal that is required for proper function of one of the body's antioxidant enzyme systems, is sometimes included in this category. The

body cannot manufacture these micronutrients so they must be supplied in the diet.



Exercise and oxidative damage

Endurance exercise or cardio activity can increase oxygen utilization from 10 to 20 times over the resting state. This greatly increases the generation of free radicals, prompting concern about enhanced damage to muscles and other tissues.

Thus increased intake of vitamin E is protective against exercise induced oxidative damage. It is hypothesized that vitamin E is also involved in the recovery process following exercise.

Recommendations

- ◆ Follow a balanced training program that emphasizes regular exercise and eat 5 servings of fruit or vegetables per day. This will ensure that you are developing your inherent antioxidant systems and that your diet is providing the necessary components.
- ◆ Weekend warriors should strongly consider a more balanced approach to exercise. Failing that, consider supplementation.
- ◆ Do not oversupplement.